

CLAIMS

1. A wind power generator, comprising:
 - an approximately cylindrical duct with the side cross-section thereof having a wing-like shape;
 - a streamlined pencil body coaxially installed with the duct;
 - an impeller constituting a part of the pencil body and capable of rotating about a duct axis in an inner portion of the duct by a force of wind flowing in the inner portion of the duct; and
 - a power generator converting a rotational energy of the impeller into an electric energy; wherein
 - a maximum wing thickness position is positioned nearer a leading edge than a center of a chord in the side cross-sectional wing-like shape of the duct,
 - an opening diameter of a front end of the duct is made smaller than an opening diameter of a rear end, and an outer diameter of the duct is made approximately uniform at least in a rear portion of the duct,
 - the pencil body is installed such that a front end portion is positioned rearward from a front end portion of the duct and a rear end portion is positioned forward from a rear end portion of the duct, and
 - a ratio of a maximum outer diameter of the duct with respect to a minimum inner diameter of the duct is within a range between 2.0 and 4.3.

2. A wind power generator as claimed in claim 1, wherein the wind power generator is provided with an approximately annular flap plate protruding in an outer diameter direction of the duct from the rear end portion of the duct, and a ratio of a width of the flap plate with respect to the rear end radius of the duct is within a range between 0.020 and 0.15.

3. A wind power generator as claimed in claim 1 or 2, further comprising:

a wind direction measuring means for measuring a wind direction; and

a duct slope control means for controlling such that an angle of slope of a duct axis with respect to the wind direction measured by the wind direction measuring means becomes equal to or less than 10 degree.

4. A wind power generator as claimed in claim 1, 2 or 3, wherein a vane of the impeller is formed by cutting an approximate oval approximately in parallel to a short axis into a shape which is shortened from an end in a long axial direction, and a ratio of a length in the long axial direction of said vane with respect to a long diameter of the approximate oval is within a range between 0.82 and 0.87.